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A RESOURCE-BASED APPROACH TO THE VALUATION OF AFRICAN START-UPS BY VENTURE CAPITALISTS.

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the Research Proposal contains no material previously published or written by another person except where due reference is made in the Research Proposal itself.

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This Research Proposal has been submitted for examination with my approval as the Supervisor.

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ABSTRACT.

The valuation of a new firm is instrumental in entrepreneur financing. This research aims to create a consistent theoretical structure that seeks to determine whether variables identified as basic to a firm's performance in strategy theories explain the valuation of startups by venture capitalists.

The main proposition of this research is that venture capitalists assess the variables that are essential to companies ' efficiency in valuing fresh companies. The specific pointer that venture capitalists look into is the qualities of the founder. This pointer will influence startups' valuation by venture capitalists when entrepreneurs seek financing from venture capitalists at the early development stages.

The empirical findings of this study would also seek to develop an initial theoretical linkage between under-researched literature on venture capital maintenance and well-developed theories in strategic management. A theoretical rigor is added to the literature on investments by venture capitalists with the introduction of this approach.

A RESOURCE-BASED APPROACH TO THE VALUATION OF AFRICAN START-UPS BY VENTURE CAPITALISTS.

CHAPTER ONE: INTRODUCTION.

1.1 Background to the study.

Valuation of pre-revenue startups has hitherto been an issue bedeviling both entrepreneurs and venture capitalists alike. There are two fundamental questions that have been raised for generations on end with regards to this particular issue. For the entrepreneur, the question is how to value his/her startup when (s)he seeks financing in equity terms from a venture capitalist (Hsu, 2001).

For the venture capitalist, the question is how to value a potential entrepreneurial venture when deciding on whether or not to make an investment. Currently there are no systematic answers for both these questions. Identification of viable solutions to both these questions is not only important to the entrepreneur but also to the venture capitalist for a myriad of reasons (Cumming et al., 2013).

On the one hand, for venture capitalists, the valuation of startups is essential for the following reasons. Firstly, it guides the overall fund's probability and thus also influences their relationship with the providers of the fund. This is also in addition to the fact that the company's value also determines the stake of equity the venture capitalists would require in the firm as a return for their investment (Damodaran, 2016).

On the other hand, the valuation of the startup is of interest to entrepreneurs. The valuation attaches a monetary value to the resources and the efforts put into the new firm. It also governs the motivation that the entrepreneur taps into while running his/her business, acting as an indicator of the progress already made (P. Gompers et al., 2016).

Financial literature also supports the need for valuation of startups. Besides aligning the ambitions of the entrepreneur to that of the venture capitalist, Clercq, Fried, Lehtonen, & Sapienza, (2006) suggest that the valuation helps to assure and structure a fair treatment of the entrepreneurs. Zacharakis, Erikson, & George, (2010) argue that valuation reduces the potential sources of dispute between entrepreneurs and venture capitalists.

Several academics in the field of entrepreneurship have stressed the significance of more in-depth research into investment by venture capitalists. The argument advanced is that in spite of the themes in financing by venture capitalists being intriguingly captured, this field has not been properly discussed in the mainstream finance journals (Davila et al., 2003).

The venture capitalist decision-making process is focused around the company concept, its' sustainable advantages, the scalability of the business and generally, the entrepreneur himself/herself. The prospects' financial projections do not affect the selection of early-stage ventures by venture capitalists according to his study. This argument is advanced by Silva, (2004).

The suggestion that there is a gap between acceptable requirements for investment and the in-use criteria for investment is supported by financial literature. The study explains the reason behind pioneer high-tech founders ' suboptimal assessment of human capital and argues that there is a considerable use of their instincts in the decision-making process (Levie & Gimmon, 2008).

The difficulty presented by traditional valuation methods that rely primarily on the ensuing future cash flows to value new ventures can be dealt with by looking to strategic management theories. This approach achieves similar (or better) results because it focuses on the input factors such as the industry, top management and startup experience which can be reliably measured for new ventures unlike the output factors such as future cash flows (Miloud et al., 2012). This is the basis of this study.

1.2 Problem statement.

The present value of an investment's subsequent cash flows is commensurate with its economic value. This argument is advanced by Brealey, Myers, & Allen, (2011). This financial assessment depends on two variables: the capacity of the company to generate subsequent cash flows and the attitudes towards and the venture capitalists' analysis of the future cash flows (Smith et al., 2011).

This study incorporates arguments from the corporate finance literatures, (Brealey et al., 2011) and (Smith et al., 2011), that present a number of techniques for valuation that include, but not restricted to, the venture capital method, the earning multiple method and the discounted cash flow method. These arguments, however, does not suffice for the valuation of new firms financially.

The most significant assumption underscoring these methods of valuation is that a capital market that is efficient exists for the propertiorship of firms. The capital markets have regulations in place that require public firms to put out all important information into the market. Since these firms are listed publicly, the propertiorship of these firms is also highly convertible (Fama, 1991).

The risk capital market, however, is extremely inefficient and very distinct from the capital market. There are four reasons behind this argument. Firstly, there is an asymmetry of information between entrepreneurs and venture capitalists. This is because existing regulation does not require the publication of management or financial information for private firms. This argument is advanced by Lerner, Hardymon, & Leamin, (2012).

Secondly, new entrepreneurial ventures do not have a ready market and as such, the firms' ownership is less liquid due to the regulation (Lerner, 1994). Thirdly, investments are made by venture capitalists into new ventures. These ventures are characterized majorly by a short history of operation, thus making the approximation of future cash flows challenging due to limited accounting information. Lastly, the intangibility and firm-specificity of the assets held by new ventures also contributes to the venture capital market's inefficiency (P. A. Gompers, 2001).

The valuation of new firms using the major methods of financial valuation is hampered by the venture capital market's inefficiencies. The difficulty in estimating the ensuing cash flows and determining the pertinent discount rate does not allow the use of the discounted cash flow method. On the other hand, the venture capital method is considered highly subjective and difficulties arise in justification of the valuations presented (P. A. Gompers, 1998).

This study explores the development of a framework for the valuation of new ventures where existing methods of valuation have failed to yield consistency in results. This is by leveraging on the theories from strategic management that systematically identify the main determinants that affect profitability at the firm-level. These theories are industry organization economics, resource-based views and network theory, but this research focuses solely on a resource-based approach that examines the company's intrinsic factors. The findings of this research are essential in the growth of an evaluation structure for African start-ups (Mahoney J. & Mahoney T, 2005).

1.3 Objectives of the study.

1.3.1 General objectives.

The main objective of this study is to develop a theoretical framework that aims to quantitatively and objectively value pre-revenue African startups.

1.3.2 Specific objectives.

Based on the main objective outlined above, here are the specific objectives of this study:

i. If the valuation of a new venture is higher if the founder has relevant industry experience prior to founding the venture.
ii. If the valuation of a new venture is higher if the founder has top management experience prior to founding the venture.
iii. If the valuation of a new venture is higher if the founder has startup experience prior to founding the venture.

1.4 Research questions.

Based on the specific objectives outlined above, I attempt to answer the following research questions:

i. Is a new venture valued higher if the founder has relevant industry experience prior to founding the venture?
ii. Is a new venture valued higher if the founder has prior top management experience?
iii. Is a new venture valued higher if the founder has prior startup experience?

1.5 Justification of the study.

Investments by venture capitalists usually accompanies a process that is rather well-defined. This method starts from the start of the agreement and finishes at the exit of the investment, according to Tyebjee & Bruno, (1984). A startup's valuation is one of the most challenging yet important topics faced in this process by both the entrepreneur and the venture capitalist. Tyebjee & Bruno, (1984) further argue that the establishment of the venture capital price is at the center of the discussions between the venture capitalists and the entrepreneurs.

Studies of start-up valuation in both literature on corporate finance and literature on entrepreneurship by J. Hall & Hofer, (1993) and P. A. Gompers, (1998) have found an existing gap in the literature on this subject. The factors that influence venture capitalists ' investment process have been studied in recent studies in entrepreneurial finance literature.

From the foregoing studies, a better understanding of the valuation of startups for not only theoretical but also practical reasons is necessitated. The significance of the entrepreneurial phenomenon that venture capital investment is, and particularly valuation of startups, cannot be understated. However, there isn't enough extant literature on this critical aspect of the entrepreneurial process.

The contribution of this study to current literature is a quantitative and factual assessment of the impact of strategic and non-financial variables on the definite valuation of African undertakings. A look at the strategic perspective identified by the resource-based view reveals the most significant factors that affect firm performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Theoretical Framework.

Finance literature offers insights on methods of valuing firms. The value of a venture is approximated to a predetermined valuation horizon as the discounted value of the firm's free cash flows. This is in addition to the business ' speculative value on the horizon, which is also reduced to the present value. It is important to note that the valuation horizons are picked arbitrarily. This is according to Brealey, Myers, & Allen, (2011).

To assume that only the financial metrics would influence the value of a firm would be grossly inaccurate (Amir & Lev, 1996). Qualitative factors that greatly influence the firm's value could be broadly divided into two. These are industry characteristics, for example, the ease of entry or exit of firms, and firm significant features such as the competitiveness of the venture (Hill & Power, 2012). Such factors would have to be incorporated quantitatively into the valuation of a firm.

Non-finance literature, on the other hand, in strategic management and entrepreneurship, would point us in the right direction with regards to predictors of firm performance and the process of creating enterprise value. Within the start-up valuation context, the particular theories that stand out are industry organization economics (Scherer & Ross, 1990), the resource-based view (Kor et al., 2016) and the network theory (Dubini & Aldrich, 1991).

Each of these theories approach the main theme (performance of the firm) from a different viewpoint. While the industrial organization economics theory focuses on the market structure in which the companies work and the importance of the industry structure in determining the venture's performance (Scherer & Ross, 1990), the resource-based view advance the argument that the venture is a conglomerate of valuable resources that, when utilized effectively, are a predictor of firm performance (Kor et al., 2016).

The network theory emphasizes on the importance of relationships external to the firm and how they affect the shaping of strategies and the channeling of the resources of the firm. this theory bridges the gap between the two other theories and as such, shows how these relationships impact the performance of the firm (Dubini & Aldrich, 1991).

These three factors, namely the industry organization economics, the resource-based view and the network theory, can collectively be used to develop a coherent framework to approximate the value of a firm. It has been discovered that the constructs and associated variables recognized by all three theories are crucial in anticipating company performance in the strategy literature (Scherer & Ross, 1990), (Kor et al., 2016) & (Dubini & Aldrich, 1991).

However, the industry organization economics theory and the network theory focus more on the factors that are outside to the venture while the resource-based view underscores the factors that are inside to the venture in predicting the performance of the firm. As such, these two theories are not pursued in this particular study while the focus is left on the resource-based view (Miloud et al., 2012).

2.1.1 Resource-based view.

This theory continued to underscore the importance of identifying the firms' sources of continued competitive benefit in strategic leadership, as earlier argued by Porter, (1985) and (Rumelt, 1984). These frameworks suggested that firms acquired sustained competitive advantages either through isolation of its' threats and opportunities (Porter, 1980) or a description of its' strengths and weaknesses (Hofer & Schendel, 1978.)

The resource-based view of competitive advantage analyzes the connection between the performance of a firm and the features intrinsic in it. There are two assumptions that the resource-based view is banked on when looking into the sources of competitive advantage. The implications of these two assumptions is also considered in the assessment of the sources of competitive advantage (Barney (1991).

The first assumption is that there is a heterogeneity with regards to the strategic resources that firms control within the industry. Secondly, the assumption also made is that mobility of these resources may be limited across one firm to another, and as such, the heterogeneity can last a long time.

2.1.2 Definition of key concepts

This chapter defines the three ideas that are fundamental to the resource-based perspective. These ideas are firm resources, competitive advantage and sustained competitive advantage.

Firm Resources.

All assets, capacities, organizational procedures, company-controlled characteristics, data and expertise that allow the company to design and execute policies that enhance its effectiveness and efficiency are referred to as firm resources (Daft, 1992).

A number of writers have recognized attributes of a company that allow it to design and execute value-creating strategies including Hitt & Ireland, (1986) and Thompson & Strickland, (1992). There are three categories of possible company assets recognized by the writers: human capital resources (Becker, 1964), physical capital resources (Williamson, 1975) and organizational capital resources (Tomer, 1987).

Resources classified under physical capital include, but are not restricted to, the plant and machinery of a company, its geographical place and the company's physical technology (Williamson, 1975). Resources that classify the training, judgment, knowledge, interactions and intelligence of the individual staff and executives of a company fall under human capital (Becker, 1964). The resources that are the official reporting structure of a company under organizational capital and the control and coordination structures (Tomer, 1987).

The characteristics of the company that are essential to this study are the human capital resources in line with the research goals and issues. While all these resources are inherent to the firm, the founders' experience is mirrored in the human capital resources better than in the physical or organizational capital resources. (Becker, 1964), (Williamson, 1975) & (Tomer, 1987). However, the physical capital resources (i.e. the geographical location) are controlled for under the control variables.

Competitive advantage and sustained competitive advantage.

A company is said to compete advantageously if no other rivals, either existing or potential, pursue the policy it is implementing to generate value at the same moment. This advantage is said to be sustained when, in addition to, the strategy being implemented is not being followed by any other competitor, the strategy cannot be duplicated by the other firms.

The definition of Barney, (1991) sustained competitive benefit does not rely on the calendar period during which a company enjoys the competitive advantage. The sustainability of the competitive advantage depends on the competitive duplication option or absence thereof.

The competitive advantage is regarded as sustained if the implication of the definition presented beforehand is that it does not last forever. The sustainability of the advantage can be challenged by the efforts of other firms to duplicate the advantage. Duplication of the competitive advantage advantages by competing firms, however, does not nullify the continuous competitive advantage that a company already enjoys.

2.1.3 Firm resources and sustained competitive advantage.

The theoretical framework that has been established to define the sources of continuous competitive advantage is based on the assumptions that a firm's intrinsic resources may be immobile and heterogeneous. It is essential to note that not all of a company's resources can be regarded as continuous competitive benefits.

The attributes that a company resource must have this capacity are: a) must be imperfectly imitable; b) must be uncommon in the present or potential competition of a company; c) must be useful in that it neutralizes threats or exploits possibilities in the setting of a company; and d) it must be strategically equal in substituting assets that do not exist.

These characteristics can empirically indicate the heterogeneity and immobility of the company's assets, and these characteristics can also measure the usefulness of these resources in creating continuous competitive benefits.

2.1.4 Internal resources and new venture valuation.

Better financial performance at the company level is connected with a multitude of superior resource variables. These range from the possession of these resources (Barney, 1991), deployment of these resources (Mahoney & Pandian, 1992), the configuration of these resources (Eisenhardt & Martin, 2000) and the renewal of these resources (Alvarez & Busenitz, 2001).

The resource-based view holds that only the resources recognized using the VRIN test that are precious, rare, inimitable and non-substitute lead to a sustainable competitive advantage. The most important outcome of this VRIN exam is the entrepreneurial human capital abilities for this debate.

This strategy helps bridge the gap between studies on entrepreneurship and the individual entrepreneur's resource-based view. The resource-based view is aware of the reality that the company is a resource conglomerate and places higher significance on variables intrinsic in creating or breaking the company.

2.2 Empirical Review

By examining the resource-based concept of strategic management from the literature, this study analyzes factors that are essential to the valuation by venture capitalists of new enterprises.

2.2.1 Startup valuation and entrepreneurial resources.

The most significant resources in a startup has been identified as the entrepreneur by various research streams. The literature spans from investment in venture capital ((Tyebjee & Bruno, (1984); (Macmillan et al., 1985)) to business survival and its' strong results ((Sandberg & Hofer, 1987); (Aspelund et al., 2005)).

A new venture's most significant human resource is the entrepreneur. In the initiation and growth of the new business, the input of the founder is critical to the new venture's achievement or failure. Both venture capital and academic professionals have acknowledged the entrepreneur's positive influences. The entrepreneurship studies that support thus argument include, but are not limited to: Tyebjee & Bruno, (1984); Macmillan et al., (1985); Aspelund et al., (2005) and Gimeno, Folta, Cooper, & Woo, (1997). The resource-based view asserts that the start-up and its valuation have a favorable connection with the human resources connected with the new undertaking.

2.2.2 Entrepreneur.

The entrepreneur's track record is important for venture capitalists, according to (Timmons. 1994). An entrepreneur's' track record' relates to the' comprehensive and proven working understanding of the company they plan to launch.' Experience is a very significant criterion in venture capitalist financing choices. Experience is defined as a combination of technical, industry, management and startup experience.

Industrial (technical and/or market expertise).

The amount of years an entrepreneur has worked in a comparable sector has a positive and significant impact on sales development (Siegel et al.. 1993). According to (Gimeno et al., 1997), high growth ventures are more likely to be led by founders inspired by their previous employment.

And thus, the proposition based on this literature is:

A_1 – A new venture is valued higher if the founder has relevant industry experience prior to founding the venture.

Top management experience.

The knowledge and skills acquired through moving up a hierarchy of management layers are described in the top management experience literature (Roure & Keeley, 1990). The argument behind attaching the relevance of the experience to the valuation, and eventually, the performance of the startup is that the entrepreneur 'has been there before'. The assumption is that the entrepreneur has knowledge of the organizational structures and the essential strategies that would grow the startup (Siegel et al., 1993).

Findings that back this assumption include: Gimeno et al., (1997). They find that the supervisory and senior management experiences are positively and substantially linked to return on investment.

And thus, the proposition based on this literature is:

A_2 – A new venture is valued higher if the founder has prior top management experiences.

Startup or other entrepreneurial experience.

A tailored set of entrepreneurial abilities, a reputation for company and a rolodex of network contacts; all of these are strategic resources that a fresh venture can leverage on and are assumed to be yielded from previous entrepreneurial experience. Power, wealth and legitimacy that have been accumulated by seasoned entrepreneurs can be used to overcome obstacles that traditionally face startups, as opposed to starting from the basics. This is according to Larson & Starr, (1993).

Venture capitalists believe that a direct and hands-on entrepreneurial experience is an important success predictor for new ventures (Muzyka et al., 1996). The representation of venture capitalists on the board of directors improved considerably for undertakings where the CEO had no prior experience in running a business venture (Joshua Lerner, 1994). The increased presence of venture capitalists on boards suggests that the venture requires closer monitoring, which results in higher costs for investors.

And thus, the proposition based on this literature is:

A_3 – A new venture is valued higher if the founder has prior startup experiences.

2.3 Research gap

The approach of this framework is straightforward. The strategy literature reviewed for its' development provide the constructs and the related variables that significantly a firm's performance. The finance literature reviewed presented a discounted cash flow method to value a new firm. In that breadth, the framework on strategic management that this study develops will achieve similar, if not better, results when the estimation of future money flows is difficult.

This approach rightly assumes that there is an objective measure of the input factors that would impact future cash flows. The framework presents a better alternative than just an arbitrary value that entrepreneurs or venture capitalists would settle on when valuing a startup. This is by focusing on the inputs such as the attractiveness of the industry rather than the outputs, for example, the future cash flows.

The framework this study develops does not intend to come to a perfect solution to startup valuation but looking in the literature on investment in venture capital and empirical results on new enterprises, there are justifications of a considerable nature that the framework would do well. The success rates of venture capital investments are greatly improved by employing multiple methods of valuation, according to Dittmann, Maug, & Kemper, (2004).

CHAPTER THREE: METHODOLOGY.

3.1 Research Methodology.

A quantitative approach to the research was adopted as it is deemed appropriate to test the proposed causal relationships.

3.2 Research Design.

3.2.1 Data sources and case selection.

The data on valuation by venture capitalists is obtained from Refinitiv (formerly Thomson Reuters). The Thomson Financial Securities Data (TFSD) database is the frontrunner with regards to smart data for companies and practitioners around the world. The extensive database provides customers with information on all types of business alliances, including, but not limited to, joint ventures, mergers and acquisitions, strategic alliances and research and developments agreements (Lerner, 1994).

TFSD is the official data collector for the domestic association of venture capitalists and the most authoritative information source for investment in venture capital. The choice of the data used in the valuation as a dependent variable to test an alternative approach to valuation might be second-guessed. This is in light of the fact that they are the product of existing venture capital valuation methods (Lerner, 1994).

The choice is supported by existing financial literature (P. A. Gompers, 1995). The backing behind this choice is the assumption that the true value of any asset cannot be estimated by each individual investor. However, considering that each investor has a big enough amount of shareholders and autonomous estimates, the mean of the individual estimates is always close to the true value of the asset (Black, Jensen & Scholes, 1972.)

Focus is placed on the valuing of companies that are in their early stages. This is because these stages present the greatest challenge to researchers in academia and practitioners. The ease of objectively identifying the characteristics of ventures in their early stages also contributed to the choice of early-stage ventures (Mechner, 1989).

The case selection procedure consisted of the following steps. The sample firms must

i) received early phase venture capital financing between 1 January 2009 and 31 December 2018. This period was chosen to only cover the post-financial crisis period.

The 2008-2009 financial crisis was initially expected to minimally affect sub-Saharan Africa. This is because of the shallow integration and depth of these financial systems with the capital markets in Europe and USA. This perception, however, changed when the vulnerability of these markets to trade linkages and to the trade finance disruptions that accompanied the financial crisis were discovered (Allen & Giovannetti, 2010).

ii) at the moment of financing, be less than 5 years of age.

The 'stage of development' thesis developed by C. Ruhnka & E. Young, (1987) in the entrepreneurship literature was accepted widely but rarely validated. The conclusion of this empirical research is that in the early phases of growth there were distinctive features that would define enterprises and these features decreased in the subsequent phases of the projects.

For this study and consistent with C. Ruhnka & E. Young, (1987), early stages of ventures include the seed stage, the startup stage and the first stage. This is the reason why this survey was selected for startups who were less than 5 years of age at the moment of financing.

iii) be African firms, since there's no extant study on African firms.

In addition to the fact there is no existing study on African startups, there is a difficulty in raising investments abroad by African startups. This is primarily because of cross-ecosystem grinding. Investors specialize by investment stage in mature startup ecosystems such as London or New York, with the confidence that the next stage of investment is covered by other investors (Virani, 2016).

However, in newer startup ecosystems such as those prevalent in South Africa, Nigeria and Kenya, later-stage investors aren't there and as such, startups wanting to develop quickly through venture capital need to leave. The early-stage investors in these ecosystems operate on a linear paradigm of development as this mirrors the expectation for their return (Virani, 2016).

Rather than viewing the investment as a high-growth startup funding, these investors view the investment as small business funding. This difference also presents itself in risk assessment, portfolio management and the calculation of the investment returns. This effectively means that these investors are unable to plug into the network of investors in mature startup ecosystems (Virani, 2016).

The negotiation method between African start-up founders and European venture capitalists often fails because this tends to deteriorate rapidly into market haggling rather than focusing on the broader ambition in which everyone makes cash. That brings off investors and leaves the entrepreneur wondering why they end up not getting any investment (Virani, 2016).

3.2.2 Measurements.

The aim of this study is to try to identify the original theoretical link between the valuation of the new undertaking and the variable approach. The variables in the model are operationalized in a variety of ways. However, consistent with respective research streams. this study follows the argument presented by traditional finance literature (P. A. Gompers, 1995) & (Sahlman, 1990), subject to the information accessibility restrictions.

3.2.3 Dependent variable.

A startup's valuation is determined by the valuation of the pre-money. This is the quantity announced at the valuation date minus the quantity invested in the funding round. This is a normal method of assessment in the literature on risk capital financing (P. A. Gompers, 1995).

The dependent variable has to be distributed normally and therefore a Shapiro-Wilk W test is conducted to diagnose the possible deviation from the normal distribution. The results show that the data has a normal distribution.

3.2.4 Independent variables.

There are both quantitative and qualitative dimensions in this variable. both of which are significant. There is no perfect way for both aspects of experience to be measured.

Entrepreneur's industry experience.

Using the number of years, a manager has worked in an industry is a common measure in the literature reviewed. Such data. however, is in limited availability to private companies.

As a proxy for the business experience of the entrepreneur. I use the cumulative number of months the entrepreneurs have worked in the same sector (Siegel et al., 1993).

Top management experience.

In the same light. the entrepreneur's leadership experience is also demonstrated as the cumulative number of months the entrepreneurs have previously held executive positions in the top management teams (Roure & Keeley, 1990).

The executive positions in the top management team include the i) CEO/President ii) CMO/VP in-charge of business development iii) CTO/VP in-charge of technology iv) CFO/VP in-charge of finance and v) COO/VP in-charge of operation.

Startup experience.

Likewise, the entrepreneur's start-up experience is stated by the cumulative number of months the entrepreneurs have at startups they have founded or co-founded. This is only before they founded the firm under study (Stuart & Abetti, 1990).

3.2.5 Control variables.

A range of variables influence a startup's accurate evaluation owing to the complexity of the nature of the calculations. The scope of this theoretical framework does not cover some of these factors. To prevent misinterpretation of the theoretical factors, the effect of these factors needs to be controlled. The model, therefore, includes control variables which include not only firm specific factors but also industry specific factors.

These variables are measured objectively and in a straightforward manner, consistent with established practice in relevant literature. All measurements, with the exception of firm-level control variables, have already been calculated in their respective data sources and are taken directly from there.

For the factors at the industry level, the control variable included is the market size. The annual revenue of the industry is the measure of the market size. In instances where the data on the annual revenue is not a fair representative of the entire breadth of the industry, the market capitalization of the industry players is used in its place.

For the factors at the firm level, there are two control variables that are included are: firm development stage and the firm age. The age of the company is evaluated by subtracting the date of foundation from the date of funding. It is labeled' age' whereas the unit of measurement is' month'.

As a categorical variable, the firm development stage is coded: '0' for seed stage and '1' for early stage.

Besides the two control variables at the company level, the startups are grouped geographically into either five of these African regions to control for organizational capital resources. These groups are: i) North Africa ii) West Africa iii) East Africa iv) Central Africa and v) South Africa.

3.3 Model estimation and descriptive statistics.

The equation below summarizes the entire model in the empirical analysis to be estimated.

Pre-money valuation = $\alpha + \beta_1$ (Industry experience) + β_2 (Management experience) + β_3 (Startup experience) + $\beta_{1\text{-}k}$ (Vector of controls).

Where: α is the intercept, $\beta_{1\text{-}3}$ is the coefficients of the theoretical factors to be estimated, and $\beta_{1\text{-}k}$ is the coefficients of the factors to be estimated, where k is equal to 3.

Substantial firms in the sample receive multiple early-stage financings. The conventional hypothesis of autonomy in regression models from one observation to the next is likely to be violated if there is inclusion of more than one observation for the same firm (Osborne & Waters, 2002). Such observational interdependence may lead in self-correlation and firm-specific heteroscedasticity. The coefficients estimated by normal minimum squares (OLS) are inefficient when such issues arise (Moulton, 1986).

To diagnose the potential violation of the classic assumptions, this study incorporates the performance of two procedures. For the problem of firm-specific heteroscedasticity, consistent with Greene, (2008), the data is examined by the Modified Wald test (Arellano & Bond, 1991). The variance of the dependent variables is heteroscedastic (not constant) across the panels according to the results.

The issue of heteroscedasticity is fixed by estimating the model with an OLS estimator with random effect, assuming heteroscedasticity across panels (Moulton, 1986). The variance of the error terms can differ from panel to panel by selecting a generalized lowest square estimator (GLS) with presumed heteroscedasticity (Harvey, 1976). The effect of the contemporaneous variances is taken is present in α (the intercept term) (Lasser, 1992).

To detect the possible autocorrelation problem, this study also incorporates the Breusch–Godfrey Lagrange multiple test (Godfrey et al., 1988). In terms of error from the results, there is no serious autocorrelation. This is possibly due to the limited time waves in the data.

Table 1: Summary of variables and measurements

Variable	Sign	Measurement
Pre-money valuation	Predicted variable	Announced business valuation–investment amount.
Founder		
Industrial experience (A_1)	+	The founders' cumulative number of months worked in the same sector.
Management experience (A_2)	+	The founders' cumulative number of months in top leadership roles served by the founder.
Startup experience (A_3)	+	The founders' cumulative number of months as a founder before founding the firm under study.
Control variables		
Size of market		An industry's complete income.
Age of firm		The time difference between founding date and financing date, in unit of 'month'.
Developmental phase		Variable of category, coded '0' for 'seed stage' and '1' for 'startup stage'.
Geographical location		The geographical location of the startups' operational base. Coded as either i) North Africa ii) West Africa iii) East Africa iv) Central Africa or v) South Africa.

CHAPTER FOUR: RESULTS AND ANALYSIS

4.1 Descriptive statistics.

The table below represents a summary of the descriptive statistics. Table 2 represents the means, maximums, minimums, and standard deviation of all the variables present in the model. The 20 new ventures received a total of 25 rounds of early-stage or seed-stage venture capital funding in the chosen sample period.

Table 2: Summary of descriptive statistics

Variable	Mean	SD	Min	Max
Log (pre-money valuation)	6.34	0.50	5.46	7.24
Industry Experience	32.15	17.33	2.00	62.00
Top Management Experience	53.50	28.52	5.00	98.00
Startup Experience	74.15	39.62	8.00	136.00
Age at Financing (Months)	28.40	10.48	9.00	49.00
Annual Revenue/Market Cap (USD)	29,366,506,504.81	41,932,734,020.08	176,470.59	102,907,627,407.88

A variability among all the variables in the chosen model exists. The average log of the pre-money valuation of the early stage or seed stage startups across the funding rounds is 6.34, with a maximum of 7.24 and a minimum of 5.46. The independent variables all have positive values of between 2 and 136, which is reflected in the summary statistics.

The average age of the firm at the funding rounds is just over 28 months, with a maximum of 49 months and a minimum of 9 months. The average annual revenue of the industry that the startup operates in (or the equivalent market capitalization of the startup) is slightly over $29.3 billion, with a minimum of $0.176 million and a maximum of $102 billion.

4.2 Main statistical results.

The bivariate correlation matrix of the control variables that have been used in the model appears on the appendix of this project. Following with theoretical predictions, the dependent variables' and the independent variables' bivariate correlation are seen to be mainly consistent. Two out of the five independent variables are significant at 1%. Moreover, all the independent variables are in the predicted theoretical direction.

There exists a significant correlation between some of the independent variables as evidenced by the bivariate correlation matrix. However, the individual independent variables being significantly correlated does not mean that the whole model inherently has severe multicollinearity.

The model's average VIF (Variance Inflating Factor) is 4.64. This is significantly below the conventional threshold of 20. In this case, therefore, according to (Kutner & Nachtsheim, 2004), there isn't any multicollinearity problem in the study.

Table 3 shows the estimates from the FGLS estimation on the log of the pre-money valuation of the new startups in the study. After controlling for some of the co-founding effects and correcting for heteroscedasticity across panels, the coefficients are obtained.

Table 3: Log of pre-money valuation of new start-ups

	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	6.415385 (0.384609)	6.316871 (0.310583)	6.25100851 (0.314389769)	6.393269394 (0.352594418)	6.211552219 (0.351056209)
Industry Experience	0.014099 (0.101601)	0.035079 (0.0044)			
Top Management Experience	-0.01127 (0.039403)		0.020732014 (0.002650021)		
Startup Experience	0.017939 (0.048274)			0.015946003 (0.002117412)	
Age at Financing (Months)	0.003979 (0.009165)	0.003593 (0.007647)	0.00466136 (0.007684793)	0.004583679 (0.008453644)	0.00445509 (0.012263509)
Annual Revenue/Market Cap (USD)	-3.6E-12 (2.28E-12)	-3E-12 (1.72E-12)	-2.38503E-12 (1.72836E-12)	-3.33399E-12 (1.88493E-12)	1.46708E-13 (3.06543E-12)

The first model is the full model, which contains all the variables in the study. The second model only tests for the effects of industry experience on the pre-money valuation of the startups. The third model tests the effects of top management experience while the fourth model tests for the effects of startup experience.

The fifth model is the baseline model, which contains only the control variables. I report the results from the full model as across all the five models, the estimates are quite consistent, except for a small variability.
The primary interest at this stage of the study is to establish and determine a theoretical linkage between the valuation of a new startup by venture capitalists and the theoretical variables that are derived from the theoretical framework.

As such, it is not in the scope of this study to estimate the exact quantitative coefficients of these variables. The focus of this discussion is not on the individual coefficients but on the general relationships.

4.3 Entrepreneurial resources.

The hypotheses presented in this study all relate to the entrepreneurial resources a new startup inherently has. More specifically, the study suggests that venture capitalists not only consider the characteristics but also the experience of the founder(s) and his management team as they look towards valuing a new startup.

The proposition presented by this study advances that the quality and length of the entrepreneur's experience, as well as that of his team, should be positively related to the pre-money valuation of his new startup. All the three sub-hypotheses about the entrepreneur and his top management team receive sufficiently strong support, consistent with theoretical prediction.

4.3.1 Industry experience

In terms of the industry experience of the entrepreneur, the results from the first and second model suggest that a new startup is valued higher by venture capitalists if the founder(s) had prior relevant experience.

This is before the entrepreneur founded the startup under the study and relative to the other startups in the study. Thus, the hypothesis on industry experience measuring the quality and the length of the founder's industry experience received strong support.

4.3.2 Top management experience

In terms of the top management experience of the entrepreneur and his entrepreneurial team, the results from the first and third model suggest that a new startup is valued higher by venture capitalists if the founder(s) had prior relevant experience.

This is before the entrepreneur, and his entrepreneurial team, founded the startup under the study and relative to the other startups in the study. Thus, the hypothesis on top management experience measuring the quality and the length of the founder's top management experience, as well as that of this team, received strong support.

4.3.3 Startup experience

In terms of the startup experience of the entrepreneur, the results from the first and fourth model suggest that a new startup is valued higher by venture capitalists if the founder(s) had prior relevant experience.

This is before the entrepreneur founded the startup under the study and relative to the other startups in the study. Thus, the hypothesis on startup experience measuring the quality and the length of the founder's startup experience, as well as that of this team, received strong support.

4.4 Relative importance of theoretical perspectives

As discussed earlier on in this study, the use of the OLS estimator to estimate the models is hindered by the inclusion of repeat observations over the same firm. The repeat observations present a heteroscedasticity problem that is solved by the use of the random-effects FGLS estimation to estimate the models.

The efficiency and other benefits of the GLS estimation is not in question. However, one of the disadvantages of the GLS model is that it only reports the Wald Chi-squared test as the indicator of the overall fit of the model. It does not state the R-squared coefficient. Thus, determining the relative explanatory power of the models by looking at the scale of the overall model statistics.

However, the use of the FGLS estimation model solves this challenge. Each of the five models has a R-squared coefficient, which can also be used to calculate both the tolerance and the variance inflating factors. Table 4 reports a summary of the statistics across all the five models.

Table 4: Summary of model statistics

	Model 1	Model 2	Model 3	Model 4	Model 5
R - Square	0.784686	0.800305	0.794170	0.781945	0.009553
Tolerance	0.215314	0.199695	0.205830	0.218055	0.990447
VIF	4.644380	5.007647	4.858390	4.586006	1.009646

From the R – Square statistic values in Table 4. there is indeed a clear observation to be made, with exception of the fifth model. which is the baseline model. Among the three theoretical perspectives that attempt to explain the valuation of new startups. there is no significant difference in terms of their explaining power (R-statistic).

This is also relative to the full model. which includes the control variables included in the study. In no uncertain terms. it can be concluded that the entrepreneurial resources are equally weighted with regard to the valuation of new startups. However, it must be noted that such a conclusion comes off as premature.

The models are not fully specified as they only account for the effect of entrepreneurial resources on the valuation of new startups. Besides not being fully specified. many other essential variables from either one of the three models are not included in the individual models and by extension. this study.

The relevant importance of the three theoretical perspectives notwithstanding. the conclusion of this study is that all three dimensions of the entrepreneurial resources – industry experience. top management experience and startup experience – all contribute positively to the startup valuation by the venture capitalists.

The findings suggest that there does exits an alternate route to valuing African startups. This method relies less on financial calculations. which has proved to be unreliable. especially considering the development phases of the startups. The assessment of easily observable and quantifiable strategic entrepreneurial variables comes off as a more reliable alternative. relative to existing methods.

The strong findings that are presented by this study are based off actual valuations by venture capitalists. However. further research is needed to turn the findings put forward by this study in order to turn the results into practical viable tools that can easily be used by not only venture capitalists but also entrepreneurs.

CHAPTER FIVE: DISCUSSIONS

5.1 Implications of the study

The findings presented by this study suggest several implications for not only venture capitalists but also entrepreneurs. The first of these implications is with regards to a better accuracy in the methods of valuing new startups. This is relative to the current valuation practice by venture capitalists.

The thoughts put forward by Barry (1994) suggest that more than one in every three investments made by venture capitalists end up as losses. A greater fraction of these investments also result in total loss of the initial investment. This is 'often after years of waiting and countless hours of handholding by venture capitalists.'

During the 'dotcom bubble' of the early 2000's, huge losses were incurred by venture capitalists. This is a direct result of the over-valuation of the new startups and by extension, the investment deals. The suggestion put forward by this study is that most overvaluation problems and 'herding' of investments can be mitigated by the use of more accurate valuation methods.

The second of these implications, which is illustrated by P. A. Gompers (1998), dwells on the inefficiencies of the venture capital method. He suggest that this method is unjustifiable as well as inaccurate as it is a 'rule of thumb' method that is internally oriented towards the new startup.

A major cause of conflict between entrepreneurs and venture capitalists is the latter's unjustifiable low valuation. The approach presented by this study is intended to reduce such conflict. By increasing the defensibility as well as the accuracy of their valuation, the entrepreneur-VC collaboration is likely to improve drastically.

Seeing that new startups are more likely to survive longer if they are adaptable in their business plans, increased collaboration would also mean improved productivity levels. The entrepreneurs are also able to tweak their business operations to meet the expectations of their venture capital investors much more smoothly.

Timing is an essential component of all venture capital investment negotiations. One upside of the approach presented by this study is that the inputs are easily and readily available at this all-important time. Not only can the proposed approach lessen conflict and increase collaboration between venture capitalists and entrepreneurs but also it can increase the valuation's soundness and accuracy (Zacharias' et al., 2010).

The enhanced collaboration between venture capitalists and entrepreneurs will also result in less information asymmetry. As venture capitalists explain to entrepreneurs how they use the information they collect, entrepreneurs will further understand how to produce the information in a more digestible manner.

In venture capital agreements, both parties are expected to anticipate conflict, either between themselves or with other stakeholders. In the specific case of venture capitalists, they are motivated to go for the more accurate valuation method of an investment target. This is especially important in litigation cases as they help them defend their investment decisions.

5.2 Limitations of the study

This study employs an explanatory approach. The objective of this study is to investigate and understand the valuation of African startups. Based off the three fields of research, the explanatory variables are identified from strategic management literature. The influence of these variables on the valuation of the startups under study is the end goal.

However, this approach inherently has some limitations, as presented by this study. The first of these limitations is based off the strategic literature itself. The theoretical approach taken by this study considers the complementarity of the three research fields i.e., the industry experience of the entrepreneurs, the top management experience of the entrepreneur and his top management team and the startup experience of the entrepreneur.

One downside of this study is that it is only tied to the three variables from the resource-based view approach in strategic management literature. The inclusion of other approaches like the network approach and the industrial economics would greatly improve the results by extending the models developed in this study.

The introduction of different dimensions of variables should also be considered for entry into the models developed by this study. An interesting addition would be the incorporation of the cognitive abilities and characteristics of the venture capitalists themselves.

However, considering the breadth of industries that VC's invest in so that they reduce their risk exposure, such an addition would be difficult to quantify. Collecting such information would generally also be very hard to find and operationalize.

Moving away from less methodological issues would mean incorporating more technological variables. Previous studies have suggested that new startups face difficulties with regard to their entry points to their prospective markets. This is especially true for technology backed startups. Their chances of success are greatly reduced as well as their potentials for profit (Aspelund et al.. 2005).

Venture capitalists are well aware of all these effects and they are already likely taking into consideration such issues as they value new startups. Lastly, this study is limited in terms of time period as well as geographical coverage (Africa). Further studies should look into more specific geographical sub-locations i.e., East Africa.

As such multiple paths exist in an effort to extend this research strand on new African startups valuation: (i) test the models on new startups through a further study that includes venture capital characteristics, (ii) test the models on new startups through a further study that includes more technological variables, (iii) test the models on new startups through a further study that includes more strategic management literature such as network effects and industrial economics. (iv) a new study that explores all the limitations that are presented in the models for this study and, (v) lengthen the observation period and have a sample of East African startups in order to have a more concise study comparative.

5.3 Conclusions of the study

The valuing of a company has hitherto been a purely finance topic. However, the traditional financial valuation methods were developed with only already established companies in mind. If not for these firms, then these methods would only be applicable in public capital markets with above average efficiencies.

Waldron & Hubbard (1991) demonstrate that large variabilities occur when valuations are conducted using the traditional financial methods of valuation. Following such findings, this study leverages on theories already established in strategic management literature. These theories form the backbone of the integrated framework presented in this study.

The input variables used are thus important to the performance of a new startup. They are thus directly linked to the success of a new startup and they predict the valuation of the new startup. When the only alternative is 'pure guess', it is more prudent to value a young startup based off its' inputs rather than its' outputs.

The outputs in question here are future cash-flows, which aren't easily predictable for such firms. The inputs that can be used in place of uncertain cashflows are the ones presented in this study i.e., industry experience of the founder, top management experience of the entrepreneur and his top management team, and the startup experience of the entrepreneur.

The main proposition of this study is that the valuation of new African startups can be explained using strategic management theories, more specifically, the resource-based view. This proposition is supported by the empirical analyses' tentative results.

A systematic approach to figure out and quantitatively measure factors that affect the valuation of new startup valuation can thus be developed. This is a result of the linkage, which is substantiated empirically, between new startup valuation and strategy theories that have already been established. In both practice and theory, these findings a lot of promise. It is thus important not only in entrepreneurial financing but also in building theoretical frameworks.

The use of several methods of valuation drastically improve the success rate of agreements of funding between entrepreneurs and venture capitalists, as advanced by Dittmann et al. (2004). A disadvantage is seen to accrue to venture capital investors who engage in subjective and short-term bargaining strategies.

This is relative to their counterparts who instead adapt a long-term vision. Such investors make their investment decisions off the startup's core values of business. The approach presented by this study draws its strength from strategic management literature. The use of this criteria for valuation puts forward a long-term focus for not only the provided funding post startup-valuation but also for the startup itself.

The argument advanced by Gompers & Lerner (1999) is that the economy of the United States, more specifically the entrepreneurial and innovation sectors, have been improved by venture capital agreements for the past three decades. The methods of valuing new startups have, however, been rarely touched in existing literature, in spite of its essential nature in venture capital financing.
Only a couple of papers on this subject exist. In addition to this, these few papers are descriptive and clinical in nature. This niche in research literature is filled by this study which dives beyond statistics which are descriptive yet simple.

By banking on strategic management literature, theories which have long been established are leveraged on in the development of the framework that is integrated. This framework is used by venture capitalists to study the valuation of new African startups.

In various finance literature, the definition of the economic or investment value of any asset is the present value of all its future cash flows. This is measure of the performance of a firm. This definition can be extended by the inclusion of factors that have been identified in strategic management literature.

These factors have been found to positively influence the valuation of a new startup. As such, when taking into consideration factors that would affect the valuation of a new startup, venture capitalists should consider these factors too in the process of making their investment decisions.

From the main proposition and squarely grounded on the resource-based view strategy theory, three hypotheses were developed on the effect of entrepreneurial resources on the valuation of a new African startup by venture capitalists. These hypotheses revolved around industry, top management, and startup experience of the entrepreneur.

Based off a sample of 20 new African startups that received 25 early-stage financing rounds, the statistical analyses conducted provides backing for all the hypotheses. This indicates that the valuation of new African startups by venture capitalists indeed draws some usefulness from the theories in strategic management literature.

In future, complementary methods of valuation for new startups could be explored off the linkage, which is supported empirically, between new startup valuation practice and strategic management theories. This is especially useful where, due to a lack of accounting information, traditional approaches to valuations are unreliable.

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